

Exploring the Link Between Blood Group, Pedagogy Subject Preferences, and Qualifications

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Abstract

The blood group is one of the most dominant genetic characteristics of any individual. It links with different traits, behavioural types, proneness to certain diseases, knowledge, skill, intelligence, etc. Student-teachers with different blood groups can possess different perceptions and choose different pedagogy subjects. The present study explores the association between blood groups, choice of pedagogy subjects, and student-teacher qualifications in Manipur, India. The study population consisted of B.Ed. Student-teachers studying in 16 different B.Ed. Colleges in the academic year 2023-2024. The simple random sampling technique was used in the study to select 46 student-teachers from each college and a total sample of 460 Student-teachers. Student-teachers and the Descriptive Survey method were adopted. The study revealed significant associations between the blood groups, the choice of pedagogy subjects, and between pedagogy subjects and qualifications. However, a non-significant association was observed between the blood groups and student-teacher qualifications. These findings underscore the need for interdisciplinary research with larger, more diverse samples and additional variables, such as learning styles and cultural influences, to better understand factors shaping teacher education outcomes. The study highlights the importance of personalised teacher education, emphasising inclusive curricula that align strategies with individual strengths. Future research should integrate biological, educational, and cultural insights to enhance adaptability and effectiveness in teacher training programs.

Keywords: Academic Qualifications, Blood Groups, Pedagogy Preferences, Personalised Training, Teacher Education.

1. Introduction

The field of teacher education has witnessed increasing interest in understanding the diverse characteristics of student-teachers that may influence their academic and professional trajectories. Among these, personal attributes such as blood group, pedagogical preferences, and educational qualifications remain largely unexplored in the context of their interrelationships and their implications for teacher

training. While seemingly unrelated, these factors may provide insights into the holistic development of student-teachers and their adaptability to diverse teaching-learning scenarios.

Blood group is one of the most dominant genetic characteristics of any individual, having a relationship with different traits, behavioural types, proneness to certain diseases, knowledge, skill, intelligence, etc. Blood groups have been inherited and represented by contributions from both parents. Student-teachers with different blood groups can possess different perceptions and choose different pedagogy subjects. By knowing the impact of different blood groups on the choice of pedagogy subjects and qualifications, teacher educators and policy framers can plan and help the student-teachers in their future endeavours.

Blood groups have been analysed using various correlates over time. Studies examining the relationship between blood groups and intelligence quotient (IQ) have yielded contradictory results (Saleh Atoom, 2014; Fathima & Rajkumar, 2018). Similarly, the connection between blood groups and academic achievements has produced mixed findings. While some research indicated no definite correlation between blood groups and academic performance (Anandarajan et al., 2015; Srivastava & Yadav, 2017), other studies reported that students with blood groups A and O generally achieved better academically (Sherke et al., 2018; Kanwal et al., 2021).

The association between personality traits and blood groups has also been explored, but the findings revealed statistically insignificant differences (Nahida & Chatterjee, 2016; Alsadi, 2020; Kumar et al., 2021). Additionally, investigations into emotional intelligence, bleeding and clotting times, proficiency in computer gaming, and preferences for cloth colours demonstrated a significant influence of blood groups on these correlates (Tamanna Gupta, 2017; Waghmare & Muniyappanavar, 2018; Shumail Naveed, 2018; Imran Qadir & Naeem, 2020).

Furthermore, studies have linked blood groups with an increased risk of infectious and non-infectious diseases (Abegaz, 2021; Ahmadi et al., 2021). However, research has shown that blood groups do not correlate with the presence of third molars. This diverse body of research highlights the multifaceted role of blood groups in various aspects of human behaviour, performance, and health.

The interplay between individual characteristics and professional preferences has been a growing focus in education research. This study examines the connection between blood group, pedagogical subject preferences, and qualifications among Bachelor of Education (B.Ed.) Student-teachers, addressing a relatively underexplored area. Arangi, Kaur, and Mehta (2021) linked blood groups to personality traits and career preferences, suggesting its potential influence on pedagogical choices. Singh, Raj, and Patel (2020) emphasised the role of cultural and educational backgrounds in shaping subject preferences, which impact teaching motivation and effectiveness. Kumar and Verma (2018) highlighted how prior qualifications predict engagement with B.Ed. Curricula, shaping pedagogical competencies. Sharma (2021) advocated for personalised teacher training, integrating diverse learner profiles into inclusive education frameworks. Similarly, Mathew and Anil (2019) suggested interdisciplinary research on biological traits like blood group and academic preferences.

By examining these connections, the research aims to provide a nuanced understanding of how personal and academic factors interact in shaping the profiles of future educators. Such insights can help teacher education programs design more tailored interventions, enabling student-teachers to maximise

their potential and contribute effectively to the educational ecosystem. The study also contributes to the broader discourse on personalised education by exploring the possibility of using individual characteristics to inform teaching methodologies and program design. This approach aligns with the growing emphasis on inclusive and adaptable teacher training frameworks that accommodate diverse learner profiles (Sharma, 2021).

The B.Ed. Program is crucial in preparing future educators to navigate a diverse and evolving educational landscape. This study investigates the relationship between blood groups, pedagogy subject preferences, and qualifications of B.Ed. Student-teachers, addressing unique yet underexplored aspects of teacher education. By examining these factors, the research highlights the significance of understanding individual differences to align subject preferences with personal strengths, enhancing motivation, teaching effectiveness, and curriculum design.

The study underscores the importance of prior qualifications in shaping student-teacher readiness and pedagogical choices, offering valuable insights for personalised teacher training. Findings have practical implications, such as informing health-based accommodations, tailored elective offerings, and interventions to enhance engagement and readiness. Aligned with India's National Education Policy (NEP), the research supports inclusive, learner-centred teacher training programs that promote adaptability and effectiveness.

Integrating perspectives from biology, psychology, and education, this interdisciplinary approach fosters innovation in educational research. There is a dearth of studies on the interplay of blood groups, pedagogy subject choices, and qualifications among B.Ed. Student-teachers in India motivated this research. Its findings are expected to provide qualitative insights with medical and educational implications, benefiting medical practitioners, students, teachers, curriculum designers, and policymakers in improving education quality.

Objectives:

1. To examine the association between blood groups and the choice of pedagogy subjects among student-teachers.
2. To examine the association between blood groups and the qualifications of student-teachers.
3. To examine the association between the choice of pedagogy subjects and student-teacher qualifications.

Hypotheses:

1. There is no significant association between blood groups and the choice of pedagogy subjects among student-teachers.
2. There is no significant association between blood groups and the qualifications of student-teachers.
3. There is no significant association between the choice of pedagogy subjects and student-teacher qualifications.

METHOD:**Research design:**

This study employs a descriptive survey method to identify patterns and correlations among the variables without manipulating them, providing insights into their interdependencies. In this study, the term blood group refers to student-teachers four primary blood types—A, B, O, and AB. The term pedagogy subject describes the primary school subject selected by B.Ed. Student-teachers as their specialisation for teaching in schools. Finally, qualification refers to the highest level of educational attainment, such as a B.A./B.Sc. or M.A./M.Sc., that student-teachers have achieved before enrolling in the B.Ed. Program.

Participants:

The study population consisted of 1600 B.Ed. Student-teachers studying in 16 different B.Ed. Colleges in Manipur, India, in the academic year 2023-2024. Out of the 16 B.Ed. Colleges, 10 B.Ed. Colleges were selected using the lottery method, and the simple random sampling technique was used in the study to select 46 student-teachers from each selected college. Thus, a total of 460 B.Ed. Student-teachers form the sample of the study.

Blood group information will be gathered through a self-reported questionnaire and verified against institutional medical records for accuracy. A structured Pedagogy Subject Preferences Questionnaire, validated through expert review and a pilot study, assessed participants' preferences for pedagogical subjects, ensuring reliability and content validity. A demographic and academic data form was also used to comprehensively understand their educational background and collect detailed information on participants' academic qualifications, including prior degrees, subject majors, and grades.

Ethical considerations are integral to the study to ensure compliance with research standards and participant rights. Institutional ethical approval will be obtained before commencing the study to validate its adherence to ethical guidelines. Participants will provide informed consent, acknowledging their understanding of the study's purpose and voluntary participation. Confidentiality will be maintained by anonymising all data, which will be used exclusively for research purposes. Additionally, participants will retain the right to withdraw from the study at any stage without any repercussions. These measures ensure the integrity and ethical conduct of the research.

Statistical Techniques:

As the variables are all categorical, percentages and Pearson's Chi-Square Tests were used to analyse the collected data.

RESULTS:

Regarding the First Hypothesis:

Table 1: The Observed (Ob) and Expected (Ex) counts of student-teachers having different blood groups choosing different pedagogies.

Pedagogy → Blood Group ↓		Languages	Maths	Science	Social Science	Total
A	Ob (Ex)	21 (19.4)	11 (12.5)	59 (58.3)	31 (31.8)	122 (122)
AB	Ob (Ex)	12 (8.4)	7 (5.4)	21 (25.3)	13 (13.8)	53 (53)
B	Ob (Ex)	10 (17.6)	19 (11.3)	69 (53.1)	13 (29)	111 (111)
O	Ob (Ex)	30 (27.6)	10 (17.8)	71 (83.2)	63 (45.4)	174 (174)
Total	Ob (Ex)	73 (73)	47 (47)	220 (220)	120 (120)	460 (460)

Table 2: Sample size, critical and calculated value of χ^2 .

Sample Size	Degrees of Freedom	Critical value of χ^2	Calculated value of χ^2	p-value
460	9	2.70 – 16.92	37.391	0.000

Interpretation:

The critical value of χ^2 at 9 degrees of freedom and a 5% level of significance is 2.70 as the lower bound and 19.023 as the upper bound. However, the calculated value of χ^2 is 37.391, beyond the acceptable ranges and critical values. Also, it can be seen from the p-value that it is significant as $0.000 < 0.05$. So, the null hypothesis is rejected. Hence, there is a significant association between blood groups and the choice of pedagogy subjects of student-teachers of Manipur.

Regarding the Second Hypothesis:

Table 3: The Observed (Ob) and Expected (Ex) counts of student-teachers having different blood groups and qualifications.

Blood Group → Qualifications ↓		A	AB	B	O	Total
B.A./B.Sc.	Ob (Ex)	41 (45.1)	25 (19.6)	35 (41)	69 (64.3)	170 (170)
M.A./M.Sc.	Ob (Ex)	81 (76.9)	28 (33.4)	76 (70)	105 (109.7)	290 (290)
Total	Ob (Ex)	122 (122)	53 (53)	111 (111)	174 (174)	460 (460)

Table 4: Sample size, critical and calculated value of χ^2 .

Sample Size	Degrees of Freedom	Critical value of χ^2	Calculated value of χ^2	p-value
460	3	0.216 – 9.348	4.907	0.179

Interpretation:

The critical value of χ^2 at 3 degrees of freedom and a 5% level of significance is 0.216 as the lower bound and 9.348 as the upper bound. However, the calculated value of χ^2 is 4.907, within the acceptable ranges and critical values. Also, it can be seen from the p-value that it is insignificant as $0.179 > 0.05$. So, the null hypothesis is not rejected. Hence, there is no significant association between blood groups and student-teacher qualifications in Manipur.

Regarding the Third Hypothesis:

Table 5: The Observed (Ob) and Expected (Ex) counts of student-teachers choosing different pedagogies and having different qualifications.

Pedagogies → Qualifications ↓		Languages	Maths	Science	Social Sciences	Total
B.A./B.Sc.	Ob (Ex)	19 (27)	12 (17.4)	100 (81.3)	39 (44.3)	170 (170)
M.A./M.Sc.	Ob (Ex)	54 (46)	35 (29.6)	120 (138.7)	81 (75.7)	290 (290)
Total	Ob (Ex)	73 (73)	47 (47)	220 (220)	120 (120)	460 (460)

Table 6: Sample size, critical and calculated value of χ^2 .

Sample Size	Degrees of Freedom	Critical value of χ^2	Calculated value of χ^2	p-value
460	3	0.216 – 9.348	14.218	0.003

Interpretation:

The critical value of χ^2 at 3 degrees of freedom and a 5% level of significance is 0.216 as the lower bound and 9.348 as the upper bound. However, the calculated value of χ^2 is 14.218, beyond the acceptable ranges and critical values. Also, it can be seen from the p-value that it is significant as $0.003 < 0.05$. So, the null hypothesis is rejected. Hence, there is a significant relationship between the choice of pedagogy subjects and the qualifications of student-teachers in Manipur.

DISCUSSION:

The findings of this study offer valuable insights into the relationships between blood groups, pedagogy subject preferences, and academic qualifications among B.Ed. Student-teachers in Manipur. The analysis uncovers intriguing connections that could shape future teacher education practices.

The observed relationship between blood groups and pedagogy subject preferences highlights the potential influence of biological traits on academic and career choices. These results align with previous research (e.g., Arangi, Kaur, and Mehta, 2021), suggesting that inherent traits may guide individuals' inclinations toward specific pedagogical areas. This perspective opens new opportunities for incorporating biological diversity into personalised teacher training programs.

The study also underscores the critical role of academic qualifications in shaping subject preferences. Consistent with the findings of Kumar and Verma (2018), the results affirm that prior educational background significantly impacts student-teacher engagement and performance in B.Ed.

Curricula. Such insights can guide teacher educators in designing interventions that leverage the strengths of diverse learners.

While the interplay between blood groups and qualifications was found to be insignificant, it nonetheless underscores the importance of interdisciplinary research in teacher education, as advocated by Mathew and Anil (2019).

Further research is needed to uncover the mechanisms underlying these relationships and to validate the findings across larger, more diverse populations. Expanding the inquiry to include variables such as cultural and environmental influences could deepen our understanding of the factors shaping teacher education outcomes.

CONCLUSION:

This study provides key insights into the relationships between blood groups, pedagogy subject choices, and student-teacher qualifications among B.Ed. Students in Manipur. While blood groups did not directly influence educational choices or qualifications, the findings suggest that academic qualifications play a significant role in shaping subject preferences. The non-significant relationship between blood groups and these factors calls for further investigation, particularly into deviations in expected frequencies among certain blood groups.

Future studies should consider larger sample sizes and expand the scope to include comparisons across states, educational institutions, and variables such as academic achievements and learning styles to strengthen the findings. Such efforts would provide a more comprehensive understanding of the factors influencing pedagogy subject preferences and help uncover potential underlying mechanisms.

The implications of this research are significant for personalised teacher education. Aligning pedagogical strategies with the unique characteristics of student-teachers could enhance engagement and effectiveness. The findings emphasise the importance of inclusive teacher education programs that consider biological diversity and academic qualifications. This study lays the groundwork for future interdisciplinary research, addressing gaps in the literature and contributing to the design of more inclusive and effective teacher training programs.

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